

**SEMICONDUCTOR PROCESS CHAMBER ELECTRODE  
AND METHOD FOR MAKING THE SAME**

**ABSTRACT OF THE DISCLOSURE**

Disclosed is a system for processing a semiconductor wafer through plasma  
5 etching operations. The system has a process chamber that includes a support chuck  
for holding the semiconductor wafer and a pair of RF power sources. In another case,  
the system can be configured such that the electrode is grounded and the pair of RF  
frequencies are fed to the support chuck (bottom electrode). The system therefore  
includes an electrode that is positioned within the system and over the semiconductor  
10 wafer. The electrode has a center region, a first surface and a second surface. The  
first surface is configured to receive processing gases from a source that is external to  
the system and flow the processing gases into the center region. The second surface  
has a plurality of gas feed holes that are continuously coupled to a corresponding  
plurality of electrode openings that have electrode opening diameters that are greater  
15 than gas feed hole diameters of the plurality of gas feed holes. The plurality of  
electrode openings are configured to define an electrode surface that is defined over a  
wafer surface of the semiconductor wafer. The electrode surface assists in increasing  
an electrode plasma sheath area in order to cause a shift in bias voltage onto the wafer  
surface, thereby increasing the ion bombardment energy over the wafer without  
20 increasing the plasma density.